

Appl. No. 09/848,948  
Reply to Office Action mailed September 20, 2005  
Response dated January 19, 2006

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (Currently Amended): A method for diagnosis of cancer in a subject comprising:

(a) detecting a S100-A7 protein in a sample of blood or a blood fraction biological-fluid-sample derived from a subject; and

(b) comparing the level of protein detected in the subject's sample to the level of protein detected in a control sample,

wherein an increase in the level of S100-A7 protein detected in the subject's sample as compared to a control sample is an indicator of a subject with cancer breast cancer, lung cancer or colon cancer.

Claim 2 (Previously Presented): The method of claim 1 wherein the S100-A7 protein is detected using an immunoassay.

Claim 3 (Previously Presented): The method of claim 2 wherein the immunoassay is an immunoprecipitation assay.

Claim 4 (Previously Presented): The method of claim 1 wherein the sample is a serum sample.

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Claim 5 (Canceled)

Claim 6 (Withdrawn): The method of claim 1 wherein the cancer is breast cancer.

Claim 7 (Withdrawn): The method of claim 1 wherein the cancer is colon cancer.

Claim 8 (Withdrawn): A method for diagnosis of a subject with cancer comprising:

(a) contacting a serum sample derived from a subject with a sample containing S100 protein antigens under conditions such that a specific antigen-antibody binding can occur; and

(b) detecting immunospecific binding of the autoantibodies to the S100 protein in the subject's serum sample.

wherein the presence of autoantibodies indicates the presence of cancer.

Claim 9 (Withdrawn): The method of Claim 8 wherein the step of detecting the autoantibodies in the subject's serum sample comprises the use of a signal-generating component bound to an antibody that is specific for antibodies in the subject's serum sample.

Claim 10 (Withdrawn): The method of Claim 9 wherein the presence of autoantibodies in the serum sample is measured by an immunoassay comprising:

(a) immobilizing one or more S100 protein onto a membrane or substrate;

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- (b) contacting the membrane or substrate with a subject's serum sample;  
and  
(c) detecting the presence of autoantibodies specific for the S100 protein  
in the subject's serum sample,  
wherein the presence of autoantibodies indicates the presence of cancer.

Claim 11 (Withdrawn): The method of claim 8 wherein the cancer is lung cancer.

Claim 12 (Withdrawn): The method of claim 8 wherein the cancer is breast cancer.

Claim 13 (Withdrawn): The method of claim 8 wherein the cancer is colon cancer.

Claim 14 (Currently Amended): A kit for diagnosis of cancer in a subject comprising  
a component for detecting the presence ~~S100~~ of a S100-A7 protein in a biological  
sample of the subject's blood or a blood fraction, ~~wherein said S100-protein is S100-~~  
~~A7;~~ wherein the component for detecting the ~~S100~~ S100-A7 protein is an anti-S100  
antibody that is specific for S100-A7, such that the presence of ~~S100~~ the S100-A7  
protein in the subject's sample as compared to a control sample is an indicator of a  
subject with cancer.

Claim 15 (Canceled)

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Claim 16 (Previously presented): The kit of claim 14 wherein the anti S-100 antibody is labeled.

Claim 17 (Previously presented): The kit of claim 16 wherein the label is a radioactive, fluorescent, colorimetric or enzyme label.

Claim 18 (Previously presented): The kit of claim 14 further comprising a labeled second antibody that immunospecifically binds to the anti-S100 antibody.

Claim 19 (Withdrawn): A kit for diagnosis and prognosis of cancer in a subject comprising a component for detecting the presence of S100 autoantibodies in a sample.

Claim 20 (Withdrawn): The kit of claim 19 wherein the component is an S100 antigen.

Claim 21 (Withdrawn): The kit of claim 20 wherein the S100 antigen is labeled.

Claim 22 (Withdrawn): The kit of claim 20 wherein the S100 antigen is linked to a solid phase.

Claim 23 (Withdrawn): The kit of claim 19 further comprising a component for detection of the S100 autoantibody.

Claim 24 (Withdrawn): A method of immunizing a host against an S100 protein, S100

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derived peptide or differentially modified S100 protein, comprising inoculating the host with an S100 antigen in a physiologically acceptable carrier, wherein immunization results in a production of antibodies directed against said S100 antigen.

Claim 25 (Withdrawn): The method of claim 24 wherein the host is suffering from a disease characterized by the overproduction of S100 protein.

Claim 26 (Withdrawn): The method of claim 25 wherein the disease is cancer.

Claim 27 (Withdrawn): The method of claim 26 wherein the cancer is lung cancer.

Claim 28 (Withdrawn): The method of claim 26 wherein the cancer is breast cancer.

Claim 29 (Withdrawn): The method of claim 26 wherein the cancer is colon cancer.

Claim 30 (Withdrawn): The method of claim 24 wherein the S100 protein is selected from the group consisting of S100-AG, S100-A7, S100-A8 and S100-A9.

Claim 31 (Withdrawn): A composition for immunizing a host comprising at least one S100 protein and an adjuvant.

Claim 32 (Withdrawn): The composition of claim 31 wherein the S100 protein is selected from the group consisting of S100-AG, S100-A7, S100-A8 and S100-A9.

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Claim 33 (Previously Presented): A method for diagnosis of breast cancer or colon cancer in a subject comprising:

- (a) detecting at least one S100 protein selected from the group consisting of S100-A7 and S100-A8 in a biological fluid sample derived from a subject; and
- (b) comparing the level of protein detected in the subject's sample to the level of protein detected in a control sample,

wherein an increase in the level of S100 protein detected in the subject's sample as compared to a control sample is an indicator of a subject with breast cancer or colon cancer.

Claim 34 (Currently Amended): A kit for diagnosis of breast cancer or colon cancer in a subject comprising a component for detecting the presence of a S100 protein in a biological sample of the subject's blood or a blood fraction, wherein said S100 protein is selected from the group consisting of S100-A7 and S100-A8, wherein the component for detecting the S100 protein is an anti-S100 antibody that is specific for detecting S100-A7 or S100-A8, such that the presence of S100 protein in the subject's sample as compared to a control sample is an indicator of a subject with breast cancer or colon cancer.